

ENTERED

April 14, 2022

Nathan Ochsner, Clerk

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

SUNOCO PARTNERS MARKETING &	§	
TERMINALS L.P.,	§	
	§	
Plaintiff,	§	
	§	
v.	§	CIVIL ACTION NO. H-19-1145
	§	
U.S. VENTURE, INC.,	§	
	§	
Defendant.	§	

MEMORANDUM OPINION AND ORDER

This is a patent infringement suit filed by Sunoco Partners Marketing & Terminals L.P. ("Plaintiff" or "Sunoco") against U.S. Venture, Inc. ("Defendant" or "USV"), involving two claims from a single patent, United States Patent No. 9,207,686 (" '686 Patent").¹ Pending before the court are Plaintiff Sunoco's Motion for Summary Judgment (Docket Entry No. 92), Plaintiff Sunoco's Motion to Exclude Certain Damages Opinions of James Malackowski (Docket Entry No. 94); U.S. Venture, Inc.'s Motion for Summary Judgment ("USV's MSJ") (Docket Entry No. 96), and U.S. Venture, Inc.'s Motion to Exclude Jeffrey A. Compton (Docket Entry No. 98). For the reasons stated below, USV's MSJ will be denied as to patent misuse and granted as to ineligibility and noninfringement, and the remaining motions will be denied as moot.

¹Complaint for Patent Infringement ("Complaint"), Docket Entry No. 1, p. 1 ¶ 1 (citing '686 Patent, Exhibit 1 to Complaint, Docket Entry No. 1-1). Page numbers for docket entries in the record refer to the pagination inserted at the top of the page by the court's electronic filing system, CM/ECF.

I. Background

A. Technology at Issue

On December 8, 2015, the '686 Patent was issued by the United States Patent and Trademark Office ("PTO") to inventors, Mattingly, et al., and subsequently, Sunoco acquired all right, title and interest in the '686 Patent.² The '686 Patent is for an invention relating to "versatile systems for continuous in-line blending of butane and petroleum."³ The '686 Patent belongs to a family of patents that claim priority to United States Patent 6,679,302 ("the '302 Patent") granted on January 20, 2004.⁴

The '302 Patent explains that blending butane with gasoline "at several points of the gasoline distribution chain," was a common, well-known practice long before it or the '686 Patent were granted.⁵ The '302 Patent explains that blending butane into gasoline is generally desirable for two reasons. First, to increase profitability, because when purchased at the wholesale level, butane is generally less expensive than gasoline. Blending butane with gasoline thereby allows suppliers to increase the

²Id. at 4-5 ¶¶ 15-16.

³Id. at 4 ¶ 15 (citing '686 Patent, p. 1, Exhibit 1, Docket Entry No. 1-1, p. 2).

⁴See '686 Patent, Col. 1:7-18, Exhibit 1 to Complaint, Docket Entry No. 1-1, p. 9.

⁵'302 Patent, Col. 1:65-66, Exhibit 4 to the Declaration of Kimberly K. Dodd in Support of [USV's MSJ] and Motion to Exclude Jeffrey A. Compton ("Dodd Declaration"), Docket Entry No. 100-4, p. 8.

overall volume of their gasoline while reducing its cost on a volumetric basis. Second, to increase gasoline's volatility or ability to combust, which is especially desirable in colder months when gasoline is more difficult to combust. A common measure of gasoline volatility is Reid Vapor Pressure ("RVP"). Because the United States Environmental Protection Agency ("EPA"), as well as many states, regulate the maximum allowable RVP of gasoline sold at retail outlets such as gasoline stations, and because these regulations vary by region, state, and locality throughout the year, blending of butane into gasoline as close to the point of final sale as possible is desirable.⁶

B. The Parties' Litigation History

Sunoco has sued USV on at least two previous occasions: First, in Civil Action 15-8178 filed in the Northern District of Illinois, Sunoco alleged infringement of five other patents in the same family as the '686 Patent; and then later in Civil Action 17-01390-LPS filed in the District of Delaware, Sunoco alleged infringement of various patents in the same patent family, including different claims of the '686 Patent than those at issue in this case.⁷

⁶Id. at Col. 1:20-3:11, Docket Entry No. 100-4, pp. 8-9. See also Complaint, Docket Entry No. 1, p. 3 ¶¶ 9-10.

⁷Complaint, Docket Entry No. 1, pp. 7-8 ¶ 35. See also Brief in Support of [USV's MSJ], Docket Entry No. 97, pp. 10-11 (and exhibits cited therein); and Memorandum of Law in Support of Plaintiff Sunoco's Motion for Summary Judgment ("Sunoco's Brief in Support of Its MSJ"), Docket Entry No. 93, pp. 10-12 (discussing (continued...))

C. Allegations of Infringement

Sunoco alleges that USV owns and operates terminals throughout the United States that receive refined petroleum products, including gasoline, from refineries via pipelines, store the products in tanks, and distribute the products to tanker trucks for further distribution to retail outlets, including gasoline stations. Sunoco alleges that at some of its terminals USV uses systems to blend butane into the gasoline before the gasoline is distributed to tanker trucks.⁸ Sunoco alleges that

[u]ntil 2017, [USV]'s butane blending systems were designed to largely automatically blend butane into gasoline to achieve a target RVP, which is typically set slightly below the maximum legal RVP limit. As explained by Dan Morrill, [USV]'s Director of Terminal Operations, the systems would begin blending a preset percentage of butane into gasoline, sample the butane-blended gasoline, measure the RVP of the butane-blended gasoline, and transmit the measured RVP value to a programmable logic controller ("PLC"). The PLC would then compare the measured RVP value to a target RVP value, calculate an adjustment to the blend ratio, and then use a control value to adjust the flow rate of the butane stream to achieve the calculated blend ratio. . .

On April 3, 2017, [USV] modified its blending systems such that a human operator must manually enter the blend ratio and manually enter any changes to the blend ratio, but the other aspects of [USV]'s systems remained the same. . . [USV] refers to these systems as the "Modified Systems."

Upon information and belief, [USV] has been using its Modified Systems to blend butane into gasoline at its terminals throughout the United States, including at its terminal in the Southern District of Texas.⁹

⁷(...continued)
the Northern District of Illinois case).

⁸Complaint, Docket Entry No. 1, pp. 2-3 ¶¶ 7-8.

⁹Id. at 3-4 ¶¶ 11-13.

Sunoco alleges that USV, in violation of 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, infringes Claims 16 and 17 of the '686 Patent by using the Modified Systems to perform the claimed methods, and by making, selling and offering to sell gasoline blended with butane by performing the claimed methods.¹⁰ Claims 16 and 17 of the '686 Patent describe

16. A method for in-line blending of petroleum and a volatility modifying agent comprising:

- a) providing a petroleum stream that comprises a petroleum vapor pressure and a flow rate;
- b) providing an agent stream that comprises an agent vapor pressure;
- c) providing an allowable vapor pressure;
- d) calculating a blend ratio based upon a blended petroleum vapor pressure, said agent vapor pressure, said flow rate and said allowable vapor pressure;
- e) blending said agent stream and said petroleum stream at said blend ratio to provide a blended petroleum stream wherein the blended vapor pressure is less than or equal to said allowable petroleum vapor pressure; and
- f) measuring vapor pressure of the blended petroleum stream.

17. The method of claim 16, further comprising:

- a) withdrawing agent from said agent stream; and
- b) measuring sulfur content of said agent withdrawn from said agent stream.¹¹

¹⁰Id. at 5-7 ¶¶ 17-33.

¹¹'686 Patent, Col. 18:21-40, Exhibit 1 to Complaint, Docket Entry No. 1-1, p. 17.

D. USV's Answer and Counterclaims for Declaratory Judgment

On August 23, 2019, USV filed Defendant U.S. Venture, Inc.'s Answer, Affirmative Defenses, and Counterclaims to Plaintiff's Complaint for Patent Infringement ("USV's Answer, Defenses and Counterclaims") (Docket Entry No. 28). USV denies Sunoco's allegations of infringement,¹² asserts ten affirmative defenses, including an affirmative defense of invalidity based on 35 U.S.C. §§ 101, 102, 103, and/or 112,¹³ and three counterclaims seeking Declaratory Judgment of non-infringement, invalidity, and unenforceability, injunctive relief, attorneys' fees, and costs.¹⁴

E. Markman Hearing

On June 24, 2020, the court conducted a Markman Hearing at which the parties disputed the proper construction of three claim terms: (1) "said agent vapor pressure," (2) "calculating," and (3) the phrase "calculating a blend ratio based upon a blended petroleum vapor pressure, said agent vapor pressure, said flow rate and said allowable vapor pressure." After carefully considering the parties' arguments, the evidence, and the applicable law, the court issued a Memorandum Opinion and Order (Docket Entry No. 53), holding that each of these three terms should be construed as having its plain and ordinary meaning.

¹²USV's Answer, Defenses, and Counterclaims, Docket Entry No. 28, pp. 5-13.

¹³Id. at 13-16.

¹⁴Id. at 16-35.

II. Cross Motions for Summary Judgment

Sunoco seeks summary judgment on the following issues:

- A. whether 35 U.S.C. § 287 does not apply as a matter of law to limit Sunoco's pre-suit damages because Sunoco has only asserted method claims (not apparatus claims);
- B. whether the Court should dismiss [USV]'s affirmative defenses that:
 - 1. Sunoco is precluded from seeking costs under 35 U.S.C. § 288 when no claim of the '686 patent was found invalid prior to the start of this litigation (or at any time);
 - 2. Sunoco's infringement claims are barred by prosecution history estoppel when [USV] does not intend to rely on it and has never identified any support for it;
 - 3. the '686 patent is unenforceable for inequitable conduct when [USV] does not intend to rely on this defense and only identified its arguments from the Illinois Case in support (which were dismissed on summary judgment and never appealed);
 - 4. the '686 patent is unenforceable for patent misuse when [USV]'s underlying factual allegations, taken as true, would not render the patent unenforceable; and
 - 5. Sunoco's claims are barred by equitable estoppel when [USV]'s underlying factual allegations, taken as true, cannot prove equitable estoppel.¹⁵

USV seeks summary judgment that the '686 Patent is not infringed, is invalid as ineligible under 35 U.S.C. § 101, and is unenforceable because of patent misuse by Sunoco.¹⁶

¹⁵Sunoco's Brief in Support of Its MSJ, Docket Entry No. 93, p. 9.

¹⁶USV's MSJ, Docket Entry No. 96, p. 1.

A. Standard of Review

Summary judgment is authorized if the movant establishes that there is no genuine dispute about any material fact and the movant is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(a). Disputes about material facts are genuine if the evidence is such that a reasonable jury could return a verdict for the nonmoving party. Anderson v. Liberty Lobby, Inc., 106 S. Ct. 2505, 2511 (1986). "The party moving for summary judgment must 'demonstrate the absence of a genuine issue of material fact,' but need not negate the elements of the nonmovant's case." Little v. Liquid Air Corp., 37 F.3d 1069, 1075 (5th Cir. 1994) (en banc) (per curiam) (quoting Celotex Corp. v. Catrett, 106 S. Ct. 2548, 2553 (1986)). "If the moving party fails to meet this initial burden, the motion must be denied, regardless of the nonmovant's response." Id. If, however, the moving party meets this burden, "the nonmovant must go beyond the pleadings and designate specific facts showing that there is a genuine issue for trial." Id. Factual controversies are to be resolved in favor of the nonmovant, "but only when there is an actual controversy, that is, when both parties have submitted evidence of contradictory facts." Id. The court will not, "in the absence of any proof, assume that the nonmoving party could or would prove the necessary facts." Id. (emphasis in original). "[T]he court must draw all reasonable inferences in favor of the nonmoving party, and it may not make credibility determinations or weigh the evidence." Reeves v. Sanderson Plumbing Products, Inc., 120 S. Ct. 2097, 2110 (2000).

"When parties file cross-motions for summary judgment, [courts] review 'each party's motion independently, viewing the evidence and inferences in the light most favorable to the nonmoving party.'" Cooley v. Housing Authority of the City of Slidell, 747 F.3d 295, 298 (5th Cir. 2014) (quoting Ford Motor Co. v. Texas Department of Transportation, 264 F.3d 493, 498 (5th Cir. 2001)). See also Shaw Constructors v. ICF Kaiser Engineers, Inc., 395 F.3d 533, 538-39 (5th Cir. 2004), cert. denied sub nom. PCS Nitrogen Fertilizer, L.P. v. Shaw Constructors, Inc., 126 S. Ct. 342 (2005) ("Cross-motions must be considered separately, as each movant bears the burden of establishing that no genuine issue of material fact exists and that it is entitled to judgment as a matter of law."). If the dispositive issue is one on which the moving party will bear the burden of proof at trial, the moving party "must come forward with evidence which would 'entitle it to a directed verdict if the evidence went uncontroverted at trial.'" International Shortstop, Inc. v. Rally's, Inc., 939 F.2d 1257, 1264-65 (5th Cir. 1991), cert. denied, 112 S. Ct. 936 (1992). The nonmoving party can then defeat the motion either by countering with sufficient evidence of its own, or by "showing that the moving party's evidence is so sheer that it may not persuade the reasonable fact-finder to return a verdict in favor of the moving party." Id. at 1265. "The standard [for granting summary judgment] mirrors the standard for a directed verdict under Federal

Rule of Civil Procedure 50(a).” Anderson, 106 S. Ct. at 2511. If the dispositive issue is one on which the nonmoving party will bear the burden of proof at trial, the moving party may satisfy its burden by merely pointing out that the evidence in the record is insufficient with respect to an essential element of the nonmoving party’s claim. See Celotex, 106 S. Ct. at 2552-53. The burden then shifts to the nonmoving party, who must, by submitting or referring to evidence, set out specific facts showing that a genuine issue exists. Id. at 2553. The nonmovant may not rest upon the pleadings, but must identify specific facts that establish a genuine issue for trial. Id. See also Little, 37 F.3d at 1075.

B. USV’s Motion for Summary Judgment

USV argues that it is entitled to summary judgment of non-infringement because (1) the asserted claims are unenforceable because Sunoco engaged in patent misuse; (2) the asserted claims are ineligible for patenting under 35 U.S.C. § 101; and (3) USV has not infringed the asserted claims because the accused methods do not calculate a blend ratio using “said flow rate” or “said agent vapor pressure.”¹⁷ Sunoco argues that “[USV]’s [MSJ] should be denied on all three grounds.”¹⁸

¹⁷Brief in Support of [USV’s MSJ], Docket Entry No. 97, p. 8.

¹⁸Plaintiff Sunoco’s Answering Brief in Opposition to Defendant [USV’s MSJ] (“Sunoco’s Answer to USV’s MSJ”), Docket Entry No. 107, p. 7.

1. USV is Not Entitled to Summary Judgment for Patent Misuse

USV argues that the court should grant summary judgment on claims 16-17 of the '686 Patent "because Sunoco has entered into multiple patent licenses requiring its licensees to pay royalties after the expiration of the patents. The Supreme Court has held such conduct to be per se patent misuse, and the patent is thus unenforceable unless and until the misuse is purged."¹⁹ To support this argument, USV cites Morton Salt Co. v. GS Suppiger Co., 62 S. Ct. 402 (1942), Brulotte v. Thys Co., 85 S. Ct. 176 (1964), and Kimble v. Marvel Entertainment, LLC, 135 S. Ct. 2401 (2015). Sunoco responds that "[USV] fails to demonstrate that any patent misuse occurred, much less show that there are no fact disputes, making summary judgment improper."²⁰ Sunoco also argues that USV fails to identify any authority holding that an entire patent is unenforceable if royalties extend past expiration.²¹

In Morton Salt the patentee owned a patent on a machine used to add salt to canned foods. The patented machines were leased to canners on the condition that the canners use salt tablets purchased from the patentee. When one of the patentee's lessees used the machine with its own salt tablets, the patentee sued for infringement. Observing that "[it] is a principle of general

¹⁹Brief in Support of [USV]'s MSJ, Docket Entry No. 97, p. 9. See also id. at 29-32.

²⁰Sunoco's Answer to USV's MSJ, Docket Entry No. 107, p. 7.

²¹Id. at 29-30.

application that courts, and especially courts of equity, may appropriately withhold their aid where the plaintiff is using the right asserted contrary to the public interest," 62 S. Ct. at 405, the Supreme Court held that the patent was unenforceable because the patentee had unlawfully used the patent "to secure an exclusive right or limited monopoly not granted by the Patent Office and which is contrary to public policy to grant." Id. Morton Salt represents the principle of patent misuse that the patentee may exploit his patent but may not "condition a license so as to tie to the use of the patent the use of other materials, process or devices which lie outside of the monopoly of the patent." Transparent-Wrap Machine Corp. v. Stokes & Smith Co., 67 S. Ct. 610, 640 (1947). In Brulotte and Kimble, the Supreme Court applied this principle to licenses requiring the payment of royalties after the expiration of the licensed patent, thereby effectively extending the life of the patent beyond the statutory period.

In Brulotte the Supreme Court considered a suit for royalties on a use license, which covered twelve patents, all but one of which expired before the expiration of the agreement (17 years after the sale). Only seven patents were incorporated in the machine, which the license permitted the purchaser to use, but all of those patents expired before the termination of the agreement. The Court held that no royalties could be collected that accrued after expiration of the last patent incorporated into the machine because "a projection of the patent monopoly after the patent

expires is not enforceable.” 85 S. Ct. at 179. The Court explained that

[t]he present licenses draw no line between the term of the patent and the post-expiration period. The same provisions as respects both use and royalties are applicable to each. The contracts are, therefore, on their face a bald attempt to exact the same terms and conditions for the period after the patents have expired as they do for the monopoly period. . .

. . . [W]e conclude that a patentee’s use of a royalty agreement that projects beyond the expiration date of the patent is unlawful per se.

Id. Significantly, however, the Court voiced no objection to the fact that the royalty rate did not vary when some, but less than all, of the patents incorporated into the device expired.

In Kimble the Supreme Court reaffirmed Brulotte by holding that a patentee had no right to exact royalties for sales occurring after a patent’s expiration date, explaining that “when the patent expires, the patentee’s prerogatives expire too, and the right to make or use the article, free from all restriction, passes to the public.” 135 S. Ct. at 2407. Significantly, however, the Court also made clear that although a patentee is barred from obtaining royalties for post-expiration sales, this does not mean that all negotiated provisions in a licensing agreement necessarily cease to be effective after a licensed patent expires. Id. at 2408. The Court explained, for example, that a licensing agreement could be structured in such a way that the licensor could continue to receive “payments for pre-expiration use of a patent into the post-expiration period.” Id. The Court also explained that

parties have still more options when a licensing agreement covers multiple patents or additional non-patent rights. Under Brulotte, royalties may run until the latest-running patent covered in the parties' agreement expires. . . Too, post-expiration royalties are allowable so long as tied to a non-patent right – even when closely related to a patent. . . Finally and most broadly, Brulotte poses no bar to business arrangements other than royalties – all kinds of joint ventures, for example – that enable parties to share the risks and rewards of commercializing an invention.

Id.

The Federal Circuit recognizes patent misuse as an affirmative defense to a suit for patent infringement characterized by the patentee's act of "impermissibly broaden[ing] the 'physical or temporal scope' of the patent grant with anticompetitive effect." Windsurfing International, Inc. v. AMF, Inc., 782 F.2d 995, 1001 (Fed. Cir.), cert. denied, 106 S. Ct. 3275 (1986). When the patentee has used restrictive conditions on licensees or sales to broaden the scope of the patent grant, the Federal Circuit has held that an accused infringer may invoke the doctrine of patent misuse to defeat the patentee's claim. See Princo Corp. v. International Trade Commission, 616 F.3d 1318, 1328 (Fed. Cir. 2010) (en banc), cert. denied, 131 S. Ct. 2480 (2011) (collecting cases). Nevertheless, "[r]ecognizing the narrow scope of the doctrine," the Federal Circuit has "emphasized that the defense of patent misuse is not available to a presumptive infringer simply because a patentee engages in some kind of wrongful commercial conduct, even conduct that may have anticompetitive effects." Id. at 1329.

"[T]he key inquiry under the patent misuse doctrine is whether, by imposing the condition in question, the patentee has impermissibly broadened the physical or temporal scope of the patent grant and has done so in a manner that has anticompetitive effects." Id. at 1328.

Asserting that "[t]he '686 patent expires April 5, 2022,"²² USV argues that Sunoco has entered Butane Supply Agreements ("BSAs") with third-parties which extend past the '686 Patent's expiration:

Generally speaking, under Sunoco's BSAs, either Sunoco or the terminal operator pay to construct Sunoco's blending system at the terminal, and the terminal operator is required to buy all of its butane from Sunoco for use in the blending system. The parties then share in the profits made by blending the gasoline and butane according to a formula agreed upon between the parties. . . . As part of the BSA, Sunoco grants the terminal operator a license to its portfolio of patents directed to butane blending (including the '686 patent). (E.g., Ex. 29, UNEV agreement, at 3-4 and 19.).²³

USV argues that

[t]he '686 patent is unenforceable for patent misuse because Sunoco requires its customers to pay royalties under the BSAs after the '686 patent has expired. . . Under Brulotte and Kimble, Sunoco's extraction of post-expiration royalties constitutes patent misuse, which renders the '686 patent unenforceable until its misuse is "purged."²⁴

The evidence that USV cites is not sufficient to establish

²²Brief in Support of [USV]'s MSJ, Docket Entry No. 97, p. 30.

²³Id. at 30-31.

²⁴Id. at 31-32 (citing Remote Video Deposition of Charles Maier ("Maier Deposition"), pp. 38:12-40:13, Exhibit 31 to Dodd Declaration, Docket Entry No. 101-18, p. 12).

entitlement to summary judgment on the issue of patent misuse because while USV acknowledges that “as part of [its] BSA[s], Sunoco grants the terminal operator a license to its **portfolio** of patents directed to butane blending (including the ‘686 patent),”²⁵ USV has failed to cite evidence showing that Sunoco’s BSAs impermissibly broaden the temporal scope of the ‘686 Patent by requiring customers to pay royalties beyond the expiration date. For example, USV cites Sunoco’s BSA with UNEV Pipeline as evidence that Sunoco’s BSAs require royalty payments that extend beyond the life of the ‘686 Patent, but the license granted to UNEV Pipeline was “royalty-free.”²⁶ Nor has USV cited evidence showing that Sunoco’s BSA’s do not cover multiple patents, some of which remain valid beyond that expiration date, or that Sunoco has impermissibly broadened the temporal scope of the ‘686 Patent in a manner that has anticompetitive effects. The court therefore concludes that USV is not entitled to summary judgment on the affirmative defense of patent misuse.

²⁵Id. at 30-31 (emphasis added) (citing BSA between Sunoco Partners Marketing & Terminals L.P. and UNEV Pipeline, LLC, pp. 3-4 (defining “invention” to include the ‘686 Patent), and 19 (Article XII Grant of Limited License), Exhibit 29 to Dodd Declaration, Docket Entry No. 101-16, pp. 5-6, 21).

²⁶See BSA between Sunoco Partners Marketing & Terminals L.P. and UNEV Pipeline, LLC, p. 19, Exhibit 29 to Dodd Declaration, Docket Entry No. 101-16, p. 21 (“Upon execution of this Agreement, SPMT grants to Client, and Client accepts from SPMT, subject to the terms and conditions of this Article XII, a nonexclusive, royalty-free, nontransferable license to practice and use the Technology.”).

2. USV is Entitled to Summary Judgment under 35 U.S.C § 101

USV argues that the asserted claims are invalid under 35 U.S.C. § 101 “because they are directed to subject matter that is not eligible to be patented.”²⁷ Sunoco responds that USV is not entitled to summary judgment under § 101 because USV waived this defense by failing to raise it before filing its MSJ, and because “the asserted claims are directed to novel methods for in-line blending of gasoline and butane with numerous tangible limitations, far from an abstract idea.”²⁸

(a) USV Has Not Waived Its § 101 Affirmative Defense

Sunoco argues that USV waived its § 101 defense because “[t]he only time [USV] mentioned § 101 was in its answer to Sunoco’s complaint where it asserted a generic defense that ‘[t]he asserted claims . . . are invalid for failure to comply with the patent laws, including, but not limited to, 35 U.S.C. §§ 101, 102, 103, and/or 112.’”²⁹ Asserting that USV “did not identify § 101 in its September 2019 preliminary invalidity contentions (Ex. F) or in its September

²⁷Brief in Support of [USV]’s MSJ, Docket Entry No. 97, 8. See also id. at pp. 23-29.

²⁸Sunoco’s Answer to USV’s MSJ, Docket Entry No. 107, p. 7. See also id. at 20-28.

²⁹Id. at 20 (citing USV’s Answer, Defenses and Counterclaims, Docket Entry No. 28, p. 14).

2020 final contentions (Ex. G),”³⁰ and that in response to Interrogatory No. 10 requesting the “‘factual and legal bases and supporting evidence for [USV]’s contention that the asserted claims . . . are invalid,’ [USV] only incorporated its ‘invalidity contentions and [its] petition for inter partes review,’ neither of which raised § 101,” Sunoco argues that USV “has waived any § 101 invalidity defense.”³¹

As Sunoco has acknowledged, USV pled the affirmative defense based on 35 U.S.C. § 101 in its Answer.³² See Woodfield v. Bowman, 193 F.3d 354, 362 (5th Cir. 1999) (acknowledging “that in some cases, merely pleading the name of the affirmative defense – as [USV] . . . did – may be sufficient” to avoid waiver). Moreover, Sunoco’s contention that USV failed to identify § 101 in response to Interrogatory No. 10 is not well taken because while Sunoco only included select pages of USV’s responses to its interrogatories, USV has submitted additional pages, which show that USV specifically identified § 101 in its Supplemental/Amended Response to Interrogatory No. 7, dated September 11, 2020, by stating that

[USV] additionally responds as follows:

³⁰Id.

³¹Id. at 20-21 (citing Exhibit H, [USV’s] First Supplemental/Amended Objections and Responses to Sunoco’s First Set of Interrogatories (NOS. 1-10) (“USV’s Interrogatory Responses”), Docket Entry No. 107-9, pp. 5-6).

³²USV’s Answer, Defenses and Counterclaims, Docket Entry No. 28, p. 14.

- Claims 16-17 are invalid for the reasons set forth in [USV]'s invalidity contentions and petition for inter partes review.
- Claims 16-17 are unenforceable under 35 U.S.C. § 101.³³

Sunoco does not and cannot argue that it was surprised by USV's motion for summary judgment based on § 101, because in addition to naming this specific defense in its Original Answer, USV provided Sunoco additional notice of its intent to rely on § 101 as a defense in the supplemental/amended response that it provided to Interrogatory No. 7 in September of 2020, well before the pending motion for summary judgment was filed in September of 2021. While merely naming an affirmative defense in an answer or in response to an interrogatory may not be sufficient to provide notice to all plaintiffs in every case, each pleading is subject to individual review. Given the history of litigation between Sunoco and USV and Sunoco's familiarity of the facts underlying this action, the court concludes that USV's pleading of § 101 in its Answer and identification of § 101 in its supplemental/amended response to Interrogatory No. 7 provided Sunoco fair notice of the general nature of USV's § 101 defense. The court therefore concludes that USV has not waived its § 101 defense.

³³USV's Interrogatory Responses, p. 13, Exhibit 37 to Dodd Declaration, Docket Entry No. 117-3, p. 4. See also Reply Brief in Support of U.S. Venture, Inc.'s Motion for Summary Judgment ("USV's Reply"), Docket Entry No. 115, p. 20 (citing Exhibit 37).

(b) Applicable Law

Section 101 of the Patent Act defines the subject matter eligible for patent protection by stating that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. The Supreme Court has long recognized that § 101 “contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” Association for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2116 (2013) (quoting Mayo Collaborative Services v. Prometheus Laboratories, Inc., 132 S. Ct. 1289, 1293 (2012)). The Supreme Court has stated that “without this exception, there would be considerable danger that the grant of patents would ‘tie up’ the use of such tools and thereby ‘inhibit future innovation premised upon them.’” Id. (quoting Mayo, 132 S. Ct. at 1293).

“Patent eligibility under 35 U.S.C. § 101 is a question of law that may contain underlying issues of fact.” In re Marco Guldenaar Holding B.V., 911 F.3d 1157, 1159 (Fed. Cir. 2018). To determine whether a patent runs afoul of § 101 courts apply a two-step test articulated in Alice Corp. Pty. Ltd. v. CLS Bank International, 134 S. Ct. 2347, 2355 (2014) (citing Mayo, 132 S. Ct. at 1296-97). The first step asks whether the claims “are directed to one of those

patent-ineligible concepts," id., and, if so, the second step asks whether the claims embody some "inventive concept," i.e., whether the claims contain "an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" Id. (quoting Mayo, 132 S. Ct. at 1294).

(c) Application of the Law to the Undisputed Facts

(1) Claims 16-17 Are Directed to a Patent-Ineligible Concept

"The 'abstract ideas' category [of patent-ineligible concepts] embodies the longstanding rule that '[a]n idea of itself is not patentable.'" Alice, 134 S. Ct. at 2355 (quoting Gottschalk v. Benson, 93 S. Ct. 253, 255 (1972) (quoting Rubber-Tip Pencil Co. v. Howard, 20 Wall. 498, 507, 22 L. Ed. 410 (1874))). In Alice the Court held that patent claims directed to a method of exchanging financial obligations between two parties using a third-party intermediary to mitigate settlement risk as "drawn to the abstract idea of intermediated settlement." Id. at 2356. Comparing intermediated settlement to the abstract idea of risk hedging claimed in the patents at issue in Bilski v. Kappos, 130 S. Ct. 3218 (2010), which the Court held was an abstract idea representing a fundamental economic practice long prevalent in our system of commerce, the Alice Court held that intermediated settlement was also a patent-ineligible abstract idea. Alice, 134 S. Ct. at 2356. At step one of the Alice test the Federal Circuit "look[s] to

whether the claims ‘focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.’” EcoServices, LLC v. Certified Aviation Services, LLC, 830 F. App’x 634, 642 (Fed. Cir. 2020) (quoting Cardionet, LLC v. Infobionic, Inc., 955 F.3d 1358, 1368 (Fed. Cir. 2020)). Courts also consider the patent’s specification, as “‘helpful in illuminating what a claim is ‘directed to.’” Id. (quoting Cardionet, 955 F.3d at 1368).

Asserting that Claims 16-17 “merely require gathering data (such as petroleum vapor pressure, agent (butane) vapor pressure, and flow rate), calculating a blend ratio, and blending,”³⁴ USV argues that these claims are directed to an abstract idea that it describes variously as “data collection and processing to blend butane into gasoline,”³⁵ “blending based on data,”³⁶ and “blending gasoline and butane using conventional methods.”³⁷ USV argues that

Claims 16 and 17 use broad, functional language without any technical details for the tangible components (e.g. the streams). The claims do not specify how the vapor pressures or flow rates are measured; how to calculate a blend ratio; or how the streams are blended at the particular blend ratio. The Federal Circuit has routinely held similar claims invalid as abstract.³⁸

³⁴Brief in Support of [USV]’s MSJ, Docket Entry No. 97, p. 26.

³⁵Id. at 25.

³⁶Id. at 26.

³⁷USV’s Reply, Docket Entry No. 115, p. 9.

³⁸Brief in Support of [USV]’s MSJ, Docket Entry No. 97, p. 26.

USV also argues that Claims 16-17 are abstract because

they are directed to gathering and measuring blending data and using it to calculate the blend ratio. All of the steps of claim 16 broadly recite the process of blending butane with gasoline, and there is no dispute this has been done for decades, using manual and automated methods. (See Ex. 4, '302 patent at 1:65 (admitting "[b]utane has historically been blended with gasoline at several points in the gasoline distribution chain."). The final step recites "measuring vapor pressure of the blended stream." This too was a conventional step in butane blending systems of the prior art, (Ex. 3, '686 patent 2:32-34, 2:42-44 (describing prior art methods that measured RVP of blended stream), and thus "simply recite[s] conventional actions in a generic way" without "improv[ing] any underlying technology." Solutran, Inc. v. Elavon, Inc., 931 F.3d 1161, 1168 (Fed. Cir. 2019).³⁹

Citing a diagram labeled Figure 6, Sunoco argues that "[t]he claims are not directed to an abstract idea under step one," because when considered in light of the specification, the claims' "character as a whole" is not directed to excluded subject matter.⁴⁰

Sunoco argues that

[t]here can be no dispute that the character of the claims as a whole is directed to patent-eligible methods for blending butane into gasoline. . . . Indeed, claim 16 is direct to "[a] method for in-line blending" and requires, in part: (1) piping for "in-line blending[;]" (2) "providing a petroleum stream [e.g., gasoline] that comprises a petroleum vapor pressure and a flow rate" (red, in annotated Fig. 6 at right); (3) "providing an agent stream [e.g., butane] that comprises an agent vapor pressure (blue); (4) "calculating" a blend ratio based on certain vapor pressures and the petroleum flow rate (orange); (5) "blending" with a device (yellow) at the blend ratio "to provide a blended petroleum stream" (purple) "wherein the blended vapor pressure is less than

³⁹Id. at 28. See also USV's Reply, Docket Entry No. 115, pp. 24-26.

⁴⁰Sunoco's Answer to USV's MSJ, Docket Entry No. 107, p. 23.

or equal to said allowable petroleum vapor pressure"; and (6) "measuring vapor pressure of the blended petroleum stream" (green). Claim 17 adds "withdrawing agent" and "measuring sulfur content of said agent."

These claims are directed to patent-eligible "processes" for blending butane with gasoline, with data processing being one of many steps (#4 above). The Supreme Court held long ago "[a] process is an act, or a mode of acting" and that "[t]he mixing of certain substances together . . . is a process. Tilghman v. Proctor, 102 U.S. 707, 728 (1880) (process of decomposing fat by mixing it with water and heating patent-eligible). "Process" is defined in § 100 as a "process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material. 35 U.S.C. § 100(b); In re Wang, 737 F. App'x 534, 536 (Fed. Cir. 2018) ("A process 'consists of a series of acts or steps' and is something that 'has to be carried out or performed.'").⁴¹

Sunoco argues that USV's arguments are fundamentally flawed and based on a misapplication of precedent because they are

narrowly focus[ed] on portions of steps (d) and (e) in claim 16, but claims 16-17 are not directed to only "calculating a blend ratio" or even only "blending" (which itself is not abstract), but instead to an entire "method for in-line blending" that includes "calculating" as one of many steps. As such, [USV]'s arguments erroneously fail to consider the character of the claims as a whole.⁴²

Sunoco argues that "the claims here are directed to specific processes for 'in-line blending' involving many steps, going way beyond gathering and processing data."⁴³

The preamble to Claim 16 instructs that it is about "[a] method for in-line blending of petroleum and a volatility modifying

⁴¹Id. at 23-24.

⁴²Id. at 25.

⁴³Id. at 27.

agent.”⁴⁴ Sunoco argues that Claim 16 is not directed to an abstract idea but, instead, to a patent-eligible process because it recites tangible limitations illustrated in Figure 6 and meets the Supreme Court’s broad definition of “process.” But Figure 6, which Sunoco cites to illustrate Claim 16’s tangible limitations, is not in the specification of the ’686 Patent,⁴⁵ the claim limitations of the ’686 Patent do not mention piping or a device, and do not specify how vapor pressures or flow rates are measured, how the allowable vapor pressure is obtained, how the blend ratio is calculated, or how the petroleum and agent streams are blended to achieve a blend that is at or less than the allowable vapor pressure.⁴⁶ Neither the fact that the claim limitations refer to some physical elements, e.g., a “petroleum stream” and “agent stream,” which are blended, nor the fact that the steps meet the Supreme Court’s broad definition of “process” is enough to save Claim 16 from abstractness at step one of the Alice test, when the claim is framed at such a high level of generality. See Solutran, 931 F.3d at 1168 (stating that the “physicality of the paper checks being processed and transported is not by itself enough to exempt the claims from being directed to an abstract idea”). See also In re Marco Guldenaar Holding, 911 F.3d at 1161 (“the abstract idea

⁴⁴’686 Patent, Col. 18:21-22, Docket Entry No. 1-1, p. 17.

⁴⁵Figure 6 is depicted in Sunoco’s Answer to USV’s MSJ, Docket Entry No. 107, p. 24, but its source is not identified. Figure 6 appears to be an annotated version of Figure 2 from the ’302 Patent (Exhibit 4 to Dodd Declaration, Docket Entry No. 100-4, p. 4).

⁴⁶Brief in Support of [USV]’s MSJ, Docket Entry No. 97, p. 26.

exception does not turn solely on whether the claimed invention comprises physical versus mental steps").

Despite Sunoco's argument to the contrary, Claim 16 is focused on calculation of the blend ratio recited at the fourth of its six steps. The first three steps are preliminary steps necessary to make the calculation (i.e., providing a petroleum stream consisting of vapor pressure and flow rate, providing an agent stream consisting of vapor pressure, and providing an allowable vapor pressure). The fifth step recites using the blend ratio to blend the petroleum and agent streams, and the sixth step recites measuring the result. Claim 17 merely adds "withdrawing agent from the agent stream" and "measuring it for sulfur content." It does not recite how, when, or why that is done, or to what effect. Moreover, USV argues, and Sunoco does not cite any contradictory evidence capable of raising a genuine issue of fact for trial, that each of the steps individually, as recited at the high level of generality stated in Claims 16-17, has been practiced both manually and/or mechanically in the past. Accordingly, the court concludes that Claims 16-17 are directed to the abstract idea variously described as "data collection and processing to blend butane into gasoline,"⁴⁷ "blending based on data,"⁴⁸ and "blending gasoline and butane using conventional methods."⁴⁹

⁴⁷Id. at 25.

⁴⁸Id. at 26.

⁴⁹USV's Reply, Docket Entry No. 115, p. 9.

**(2) The Particular Elements of Claims 16-17
Do Not Contain an Inventive Concept**

At the second step of the Alice test, courts “consider the elements of each claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent eligible application.” Alice, 134 S. Ct. at 2355 (quoting Mayo, 132 S. Ct. at 1298). “The second step of the Alice test is satisfied when the claim limitations ‘involve more than performance of “well-understood, routine, [and] conventional activities previously known to the industry.”’” Berkheimer v. HP Inc., 881 F.3d 1360, 1367 (Fed. Cir. 2018), cert. denied, 140 S. Ct. 911 (2020) (quoting Content Extraction and Transmission LLC v. Wells Fargo Bank, N.A., 776 F.3d 1343, 1347-48 (Fed. Cir. 2014), cert. denied, 136 S. Ct. 119 (2015) (quoting Alice, 134 S. Ct. at 2359))).

USV argues that Claims 16-17 fail the second step of the Alice test because

they add no “inventive concept” to transform the abstract idea into patent-eligible subject matter. Claims 16-17 merely recite the use of decades-old processes of providing petroleum and butane streams; providing an allowable vapor pressure; calculating a blend ratio; blending at that blend ratio; and then measuring the blended RVP.⁵⁰

Quoting University of Florida Research Foundation, Inc. v. General Electric Co., 916 F.3d 1363, 1369 (Fed. Cir. 2019), USV argues that

⁵⁰Brief in Support of [USV]’s MSJ, Docket Entry No. 97, pp. 28-29.

"[a]n inventive concept . . . cannot simply be an instruction to implement or apply the abstract idea on a computer."⁵¹

Sunoco responds that because the claims are directed to patent-eligible subject matter, the court need not reach the second step of the Alice test. Alternatively, Sunoco argues that "the claims recite an inventive concept at step two, such that, at a minimum, issues of fact preclude summary judgment."⁵² Citing Berkheimer, 881 F.3d at 1360, Sunoco argues that Claim 16 captures advantages described in the abstract and the specification "by reciting '[a] method for in-line blending' followed by numerous steps to achieve such in-line blending."⁵³ In Berkheimer the court held that whether asserted claims "perform well-understood, routine, and conventional activities to a skilled artisan is a genuine issue of material fact making summary judgment inappropriate with respect to these claims." Id. at 1370.

Nothing in the steps recited in Claim 16 qualifies as an "inventive concept" sufficient to make the claim patent-eligible. Sunoco contends that Claim 16 includes numerous inventive concepts that were neither previously known, nor conventional or routine. But Sunoco's arguments merely assert that the '686 Patent recites a method for in-line blending. Sunoco does not argue that before

⁵¹Id. at 29.

⁵²Sunoco's Answer to USV's MSJ, Docket Entry No. 107, p. 27.

⁵³Id. at 28.

the '686 Patent butane had never been blended into gasoline in a pipeline. Nor does Sunoco identify any inventive concepts of advances in the process of in-line blending recited by Claim 16 of the '686 Patent. Because Sunoco fails to identify any inventive concepts or advances recited by Claim 16, Sunoco's argument does no more than state that Claim 16 achieves the desired result of blending petroleum and butane in a pipeline. Merely claiming achievement of a desired result is not sufficient to satisfy the second step of the Alice test. See Trading Technologies International, Inc. v. IBG LLC, 921 F.3d 1378, 1385 (Fed. Cir. 2019) ("The abstract idea itself cannot supply the inventive concept, 'no matter how groundbreaking the advance.'") (quoting SAP America, Inc. v. InvestPic, LLC, 898 F.3d 1161, 1170 (Fed. Cir. 2018), cert. denied, 139 S. Ct. 2747 (2019)); Charge Point, Inc. v. SemaConnect, Inc., 920 F.3d 759, 775 (Fed. Cir. 2019), cert. denied, 140 S. Ct. 983 (2020) ("[T]he abstract idea itself . . . cannot supply the inventive concept at step two."). Because Claim 16 discloses no inventive concept it is not patent eligible. Because Claim 17 depends from Claim 16 it, too, is patent ineligible. See American Axle & Manufacturing, Inc. v. Neapco Holdings LLC, 967 F.3d 1285, 1299 (Fed. Cir. 2020) ("Having determined that independent claim 22 is not patent eligible under § 101, we need not separately determine eligibility of the asserted dependent claims.").

3. USV is Entitled to Summary Judgment of Non-Infringement

USV argues that the court should grant summary judgment of non-infringement of claims 16-17 of the '686 Patent "because the accused methods are missing at least two elements of these claims. [USV]'s accused methods (1) do not use 'said flow rate' to calculate a blend ratio; and (2) do not use 'said agent vapor pressure' to calculate a blend ratio."⁵⁴ USV also argues that "no reasonable jury could find equivalence between these elements."⁵⁵ Sunoco responds that "multiple fact issues preclude summary judgment of non-infringement."⁵⁶

(a) Applicable Law

Evaluation of a motion for summary judgment of non-infringement is a two-step process. See Abbott Laboratories v. Sandoz, Inc., 566 F.3d 1282, 1288 (Fed. Cir. 2009), cert. denied sub nom. Astellas Pharma, Inc. v. Lupin Ltd., 130 S. Ct. 1052 (2010). First, the claims are properly construed and second, the construed terms are compared to the accused method. Id. "[A] determination of noninfringement, either literal or under the doctrine of equivalents, is a question of fact." Crown Packaging

⁵⁴Brief in Support of [USV]'s MSJ, Docket Entry No. 97, p. 14. See also id. at 8, 14-23.

⁵⁵Id. at 21.

⁵⁶Sunoco's Answer to USV's MSJ, Docket Entry No. 107, p. 7. See also id. at 10-20.

Technology, Inc. v. Rexam Beverage Can Co., 559 F.3d 1308, 1312 (Fed. Cir. 2009). To infringe a claim literally, the accused product must incorporate every limitation in a valid claim, exactly. Zodiac Pool Care, Inc. v. Hoffinger Industries, Inc., 206 F.3d 1408, 1415 (Fed. Cir. 2000) ("Absent any limitation of a patent claim, an accused device cannot be held to literally infringe the claim."). To infringe a claim under the doctrine of equivalents, the accused product must incorporate every limitation in a valid claim by a substantial equivalent. Id. As with literal infringement, there can be no infringement under the doctrine of equivalents if one limitation of a claim is not present in the accused device. Id. See also Crown Packaging, 559 F.3d at 1312 ("A finding of infringement under the doctrine of equivalents requires a showing that the difference between the claimed invention and the accused product was insubstantial."). As with literal infringement, there can be no infringement under the doctrine of equivalents if one limitation is missing. Id. "[A] determination of noninfringement, either literal or under the doctrine of equivalents, is a question of fact." Crown Packaging, 559 F.3d at 1312. The court may grant summary judgment of noninfringement only if no reasonable jury could find infringement. Id.

(b) Application of the Law to the Undisputed Facts

(1) Sunoco Fails to Cite Evidence Showing that USV Calculates a "Blend Ratio" Using "Said Flow Rate"

Asserting that "[t]he element 'said flow rate' in claims 16-17 refers to the gasoline flow rate,"⁵⁷ USV argues that its methods do not literally infringe claims 16-17 of the '686 Patent because it "does not use 'said flow rate' to calculate a blend ratio."⁵⁸ Citing depositions of its operators and the report of Sunoco's expert, Harri K. Kytomaa,⁵⁹ USV argues that

[t]he accused methods do not literally use "said flow rate" (i.e., the gasoline flow rate) to calculate a blend ratio. Instead, the operators use only two numbers to determine a blend ratio: (1) the measured vapor pressure of the gasoline; and (2) the target vapor pressure of the gasoline. . . If the vapor pressure of the gasoline is lower than the target vapor pressure, the human operators estimate an increase in the percentage of butane to achieve the target vapor pressure. . . The human operators manually input the blend percentage [or blend ratio] into the system.⁶⁰

USV also argues that it is entitled to summary judgment of no infringement with respect to use of "said flow rate" under the doctrine of equivalents because Sunoco did not assert the doctrine

⁵⁷Brief in Support of [USV]'s MSJ, Docket Entry No. 97, p. 15.

⁵⁸Id.

⁵⁹Expert Report of Harri K. Kytomaa Regarding Infringement of U.S. Patent No. 9,207,686, Served in the Present Litigation ("Kytomaa Report"), Exhibit 22 to Dodd Declaration, Docket Entry No. 101-10.

⁶⁰Brief in Support of [USV]'s MSJ, Docket Entry No. 97, p. 15.

of equivalents with respect to that element of its claims.⁶¹

Without disputing that the element "said flow rate" in Claims 16-17 refers to gasoline flow rate, Sunoco responds that USV

argues that it does not "calculat[e] a blend ratio based upon . . . said [gasoline] flow rate," but does not dispute that it calculates the amount of butane to blend based on the gasoline flow rate, only that what it calculates is a "rate" not a "ratio." However, [USV]'s calculation is exactly how the "blend ratio" calculation is defined in claim 16 and, as Sunoco's expert Dr. Kytomaa explains, is a ratio by definition.⁶²

In pertinent part Claim 16 recites, "calculating a blend ratio based upon a blended petroleum vapor pressure, said agent vapor pressure, said flow rate, and said allowable vapor pressure."⁶³ But as explained in the Kytomaa Report, all of USV's systems

are provided a starting target blend percentage (blend %) calculated by the operator. USV's operators calculate the starting blend percentage based on the unblended gasoline vapor pressure, an assumed butane (agent) vapor pressure, and an allowable vapor pressure.⁶⁴

Thus, in USV's method, a starting blend percentage is calculated by a human operator, using various vapor pressures but not by using "said [gasoline] flow rate." As Dr. Kytomaa explains, USV's human operators use on-going measurement of

[t]he blended petroleum vapor pressure, agent vapor

⁶¹Id. at 18.

⁶²Sunoco's Answer to USV's MSJ, Docket Entry No. 107, p. 7. See also id. at 11-20.

⁶³'686 Patent, Col. 18:28-30, Docket Entry No. 1-1, p. 17.

⁶⁴Kytomaa Report, ¶ 103, Docket Entry No. 101-10, p. 28.

pressure, and allowable vapor pressure . . . to adjust the blend percentage. . . The adjustment of the butane blend %, therefore, requires knowledge of the blended petroleum vapor pressure (the measurement from the sample that is taken), and knowledge of the allowable vapor pressure described in the operating manual as the "desired butane blended gasoline RVP result."⁶⁵

Once a blend percentage is calculated, USV's human operators enter that target blend percentage into a computer, which multiplies the target blend percentage by the gasoline flow rate to determine the butane flow rate needed to achieve that target blend percentage.⁶⁶ While the USV method uses "said [gasoline] flow rate" to calculate the butane flow rate needed to achieve a target blend percentage, the USV method does not use "said [gasoline] flow rate" to calculate the target blend percentage.

(2) "Blend Ratio" and "Blend Rate" Have Different Meanings

Acknowledging that USV's human operators do not use the "said [gasoline] flow rate" to determine a blend percentage but, instead, use "said [gasoline] flow rate" to establish a target butane blend rate, Sunoco argues that fact "does not avoid infringement because that is how claim 16 defines the blend ratio calculation."⁶⁷ Citing the Reply Report of Dr. Kytomaa, Sunoco argues that because "a

⁶⁵Id. at ¶ 154, Docket Entry No. 101-10, pp. 49-50.

⁶⁶Id. at ¶¶ 155-57, Docket Entry No. 101-10, pp. 50-51.

⁶⁷Sunoco's Answer to USV's MSJ, Docket Entry No. 107, p. 12.

ratio is simply a relationship between two quantities, which can be expressed in terms of a percentage (e.g. 2%), in terms of volume (e.g. 20 gallons butane per 1,000 gallons gasoline), or in terms of volume over time (e.g., 20 gpm butane per 1,000 gpm gasoline),”⁶⁸ when USV “calculates a butane flow rate on the gasoline flow rate, it calculates a blend ratio as recited by claim 16[, and that t]his is ample evidence from which a jury can find infringement.”⁶⁹ Sunoco also argues that the ‘686 Patent’s use of the terms “blend ratio” and “blend rate” does not mean that the two terms “are mutually exclusive as [USV] suggests, but only that ‘blend rate’ is narrower than ‘blend ratio,’ ”⁷⁰ and that Dr. Kytomaa’s opinion that USV infringes is sufficient to create a fact issue for trial.⁷¹

On June 24, 2020, the court conducted a Markman Hearing at which the parties disputed the proper construction of three claim terms: (1) “said agent vapor pressure,” (2) “calculating,” and (3) the phrase “calculating a blend ratio based upon a blended petroleum vapor pressure, said agent vapor pressure, said flow rate and said allowable vapor pressure.” After carefully considering

⁶⁸Id. (citing Exhibit A to Declaration of Michael C. Krill, Reply Expert Report of Harri K. Kytomaa Regarding Infringement of U.S. Patent No. 9,207,686, (“Kytomaa Reply Report”), ¶¶ 21-22, Docket Entry No. 107-2, pp. 7-8).

⁶⁹Id. at 12-13.

⁷⁰Id. at 13.

⁷¹Id. at 13-14.

the parties' arguments, the evidence, and the applicable law, the court issued a Memorandum Opinion and Order (Docket Entry No. 53), holding that each of these three terms should be construed as having its plain and ordinary meaning. Sunoco's argument that the terms "blend ratio" and "blend rate" are not mutually exclusive and that "blend rate" is merely a narrower expression of a "blend ratio" is contradicted by both the claim language and the specification of the '686 Patent.

Claim 1(f) of the '686 Patent requires "calculating a blend ratio based upon said agent vapor pressure, said gasoline vapor pressure, and said allowable vapor pressure,"⁷² while Claim 2 recites, "the method of claim 1 further comprising calculating a blend rate based upon said flow rate."⁷³ The language of Claim 1 shows that a "blend ratio" is calculated by using various vapor pressures without using "said flow rate," while the language of Claim 2 shows that once a "blend ratio" is calculated, a "blend rate" can be calculated by applying "said flow rate" to the "blend ratio." Thus, "blend ratio" and "blend rate" necessarily have different meanings.

The fact that "blend ratio" and "blend rate" have different meanings is also evidenced by the language of Claim 7 and its dependent claim 12. Claim 7 recites

⁷²'686 Patent, Col. 16:7-9, Docket Entry No. 1-1, p. 16.

⁷³Id. Col. 16:14-15.

[a] system for in-line blending of gasoline and a volatility modifying agent comprising:

. . . .

- c) a blending unit for blending said gasoline stream and said agent stream at an actual blend ratio and an actual blend rate to yield a blended gasoline stream;

. . . .

- f) wherein said blending unit periodically accesses said calculated blend ratio and calculated blend rate from said one or more IPUs, and adjusts the actual blend ratio and actual blend rate to coincide with said calculated blend ratio and calculated blend rate.⁷⁴

Claim 12, recites

[t]he system of claim 7 further comprising:

. . . .

- b) one or more information processing unites (IPUs) in informational communication with said upstream vapor pressure sensors and said informational databases, logically programmed to retrieve the data and to calculate a calculated blend ratio and calculated blend rate based upon the stored seasonal data and vapor pressure and volumetric flow rate of said gasoline stream, and for communication said calculated blend ratio and calculated blend rate to said blending unit;
- c) wherein said blending unit periodically accesses said calculated blend ratio from said IPU, and adjusts the actual blend ratio to coincide with said calculated blend ratio.⁷⁵

The use of the terms "blend ratio" and "blend rate" together

⁷⁴Id. Col. 16:44-17:3, Docket Entry No. 1-1, pp. 16-17.

⁷⁵Id. at Col 17:22-41, Docket Entry No. 1-1, p. 17.

in other claims of the '686 Patent shows that these two terms necessarily have different meanings. The fact that the terms "blend ratio" and "blend rate" used in the '686 Patent necessarily have different meanings is also evidenced by the specification of the '686 Patent, which in pertinent part states that

[t]he apparatus for controlling the blending of the butane and gasoline typically includes two valves – a modulating valve that controls the flow of butane toward the pipeline, and an on/off valve between the modulating valve and the gasoline stream. The amount of butane permitted to flow through the modulating valve can be varied to achieve any desired **blend ratio**, **blend rate**, or vapor pressure in the blended gasoline. In one particular embodiment, the modulating valve is under the control of a process control unit, which varies the **blend ratio** to attain a desired vapor pressure in the blended gasoline, based on the vapor pressure of gasoline entering the blending unit, the vapor pressure of butane entering the blending unit, and the desired vapor pressure of the blended gasoline. The **blend rate** is then calculated based upon the **blend ratio** and the rate of flow in the gasoline stream, and the modulating valve is opened or closed to allow butane addition at the rate thus calculated.⁷⁶

(3) Dr. Kytomaa's Opinion Fails to Raise a Fact Issue for Trial

Neither the Expert Report nor the Reply Expert Report of Dr. Kytomaa create a fact question for trial on the issue of literal non-infringement because the expert reports do not show that USV calculates "a blend ratio based upon a blended petroleum vapor pressure, said agent vapor pressure, said flow rate, and said

⁷⁶Id. at Col. 5:27-43, Docket Entry No. 1-1, p. 11 (emphasis added).

allowable vapor pressure” as required by Claims 16-17. Instead, Dr. Kytomaa acknowledges that in all of USV’s systems a human operator estimates a blend ratio using a mental assessment based on either a rule of thumb or prior experience, then the human operator enters the blend ratio into the computer, which calculates a butane flow rate by multiplying the blend ratio with the gasoline flow rate.⁷⁷ Nevertheless, in reply to USV’s MSJ, Dr. Kytomaa attempts to show that the USV system infringes Claims 16-17 because the blend rate at which butane is blended into the gasoline is itself a blend ratio. Since, however, for the reasons explained in § II.B.3(b)(2), above, the court has already concluded that the terms “blend ratio” and “blend rate” used in the ’686 Patent must have different meanings, Dr. Kytomaa’s opinion that blend rate is a ratio is not sufficient to raise a fact question for trial on the issue of non-infringement because Dr. Kytomaa has not opined that blend ratio and blend rate as used in the ’686 Patent refer to the same ratio.

(c) Conclusions

Because as explained above, the undisputed facts show that the USV method uses “said [gasoline] flow rate” to calculate the butane flow rate needed to achieve a target blend percentage, but unlike

⁷⁷Kytomaa Report, ¶¶ 154-59, Docket Entry No. 101-10, pp. 49-51.

Claim 16 of the '686 Patent, does not use the "said [gasoline] flow rate" to calculate the "blend ratio," because "blend ratio" and "blend rate" have different meanings, and because Dr. Kytomaa does not present evidence from which a reasonable jury could conclude otherwise, USV is entitled to summary judgment of no literal infringement of Claims 16-17 because based on the undisputed facts no reasonable jury could find infringement. See Zodiac Pool Care, 206 F.3d at 1415 (recognizing that to infringe a claim literally, the accused product must incorporate every limitation in a valid claim, exactly, and holding that "[a]bsent any limitation of a patent claim, an accused device cannot be held to literally infringe the claim"). See also Crown Packaging, 559 F.3d at 1312 (recognizing that as with literal infringement, there can be no infringement under the doctrine of equivalents if one limitation of a claim is not present in the accused device).

III. Conclusions and Order

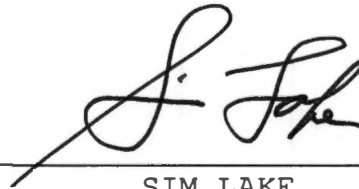
For the reasons stated above in § II, USV's motion for summary judgment is denied as to patent misuse, and granted as to ineligibility under 35 U.S.C. § 101 and non-infringement. Accordingly, U.S. Venture, Inc.'s Motion for Summary Judgment, Docket Entry No. 96, is **GRANTED IN PART AND DENIED IN PART**.

Because the court has granted USV's motion for summary judgment as to ineligibility and non-infringement, Plaintiff

Sunoco's Motion for Summary Judgment, Docket Entry No. 92, is **DENIED as MOOT**; Plaintiff Sunoco's Motion to Exclude Certain Damages Opinions of James Malackowski, Docket Entry No. 94, is **DENIED as MOOT**; and U.S. Venture, Inc.'s Motion to Exclude Jeffrey A. Compton, Docket Entry No. 98, is **DENIED as MOOT**.⁷⁸

Because neither party has sought summary judgment on USV's counterclaims for declaratory judgment, injunctive relief, attorney's fees, and costs, these claims remain outstanding. The parties are **ORDERED** to file a proposed scheduling order for resolving these outstanding claims by April 29, 2022.

SIGNED at Houston, Texas, on this 14th day of April, 2022.



SIM LAKE
SENIOR UNITED STATES DISTRICT JUDGE

⁷⁸The court has allowed the parties extraordinary leeway in submitting lengthy briefs and other written materials in connection with the pending motions. As the length of this Memorandum Opinion and Order indicates, the court has expended considerable time reading these papers and performing a significant amount of independent research to be as fully informed as possible when addressing the parties' arguments. While, because of the sheer volume of information presented, it is not impossible that some arguments were overlooked, the parties should assume that failure to expressly address a particular argument in this Memorandum Opinion and Order reflects the court's judgment that the argument lacked sufficient merit to warrant discussion. Accordingly, the court strongly discourages the parties from seeking reconsideration based on arguments they have previously raised or that they could have raised.